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Adaptation and initial validation of the German version of the Students' Life Satisfaction Scale (German SLSS)

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Abstract: The present research describes the adaptation and initial validation of a brief measure of global life satisfaction, the Students' Life Satisfaction Scale (SLSS), for German-speaking children and adolescents aged 10–17 years. Study 1 investigated the responses of 286 Swiss students (aged 12–17 years) administered paper-pencil questionnaires (e.g., Junior Eysenck Personality Questionnaire) during class on two occasions (interval 4 months). Study 2 investigated the responses of a heterogeneous sample composed of 3,407 Austrian, German, and Swiss students (aged 10–17 years), administered questionnaires online (e.g., Brief Multidimensional Students' Life Satisfaction Scale). The SLSS showed unidimensionality, explaining approximately 60% of variance, an internal consistency coefficient of $\alpha = .88$, and a stability coefficient of .55 over a 4-month interval. Study 1 found a moderate association between life satisfaction and social desirability (.20), and theoretically meaningful correlations with temperamental variables (–.16 with Psychoticism, .29 with Extraversion, –.48 with Neuroticism). Study 2 found no gender differences, but small age effects. Differences among Austrian, German, and Swiss students were also identified. Study 2 found correlations between SLSS and domain-specific satisfaction (e.g., satisfaction with the self). The two studies support the usefulness of the German SLSS and provide preliminary norms for comparison purposes for subsequent research.

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Adaptation and Initial Validation of the
German Version of the Students' Life Satisfaction Scale (German SLSS)

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Abstract

The present research describes the adaptation and initial validation of a brief measure of global life satisfaction, the Students' Life Satisfaction Scale (SLSS), for German-speaking children and adolescents, aged 10-17 years. Study one investigated the responses of 286 Swiss students (aged 12-17 years), administering paper-pencil questionnaires (e.g., Junior Eysenck Personality Questionnaire) at class on two occasions (interval 4 months). Study two investigated the responses of a heterogeneous sample composed of 3407 Austrian, German, and Swiss students (aged 10-17 years), administering questionnaires (e.g., Brief Multidimensional Students' Life Satisfaction Scale) online. The SLSS showed unidimensionality explaining approximately 60% of variance, an internal consistency coefficient of $\alpha = .88$, and a stability coefficient of .55 over a 4-month interval. Study one found a moderate association between life satisfaction and social desirability (.20), and theoretically meaningful correlations with temperamental variables (-.16 with Psychoticism; .29 with Extraversion; -.48 with Neuroticism). Study two found no gender differences, but small age effects. Differences among Austrian, German, and Swiss students were also identified. Study two found correlations between SLSS and domain-specific satisfaction (e.g., satisfaction with the self). The two studies support the usefulness of the German SLSS, and provide preliminary norms for comparison purposes for subsequent research.

Keywords: German SLSS version, life satisfaction, children, adolescents, test adaptation

Adaptation and Initial Validation of the
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Introduction

Over the last few decades, there has been an increasing amount of research on life satisfaction (LS) in adults as well as in children and adolescents (e.g., Diener, Suh, Lucas, & Smith, 1999; Gilman & Huebner, 2003; Proctor, Linley, & Maltby, 2009). To study the global LS of children and adolescents in German-speaking countries, there is a need for a reliable, valid, and brief measure. The present research describes the adaptation and initial validation of such a measure, the *Students' Life Satisfaction Scale (SLSS)* (Huebner, 1991a).

LS has been included as one component of a tripartite model of subjective well-being, along with positive affect and negative affect (SWB; e.g., Andrews & Withey, 1976; Diener et al., 1999; Huebner, 1991a). Whereas positive affect and negative affect are the emotional components of SWB, LS is conceptualized as the judgmental, cognitive component (Diener, Emmons, Larsen, & Griffin, 1985). Cognitive “judgments of satisfaction are dependent upon a comparison of one’s circumstances with what is thought to be an appropriate standard” (Diener et al., 1985; p.71).

Huebner (1991a) developed the SLSS, a brief self-report measure for 8-18 year-old children and adolescents for the assessment of global LS, that is, satisfaction with life as a whole. Initially the SLSS was composed of ten items, but based on item analysis it was reduced to seven items in its current form (Huebner, 1991a). Two of the seven items are reverse scored. To facilitate judgments of life overall, items were written to be domain-free in nature (e.g., “I have a good life” instead of “I have a good *family* life”). Whereas in early studies, the SLSS used a 4-point answer format from 1 = *never* to 4 = *always*, the current form uses a 6-point-answer format from 1 = *strongly disagree*, 2 = *moderately disagree*, 3 = *mildly disagree*, 4 = *mildly agree*, 5 = *moderately agree*, to 6 = *strongly agree*.

Unidimensionality of the SLSS has been reported in several studies (e.g., Dew & Huebner, 1994; Huebner, 1991a; Marques, Pais-Ribeiro, & Lopez, 2007). Furthermore, the SLSS has been found to be reliable with alpha coefficients between .82 and .86 (e.g., Dew & Huebner, 1994; Huebner, 1991a), and stable with test-retest coefficients of .76, .64, .53, and .51 across 1-2 weeks, one month, one year, and two years, respectively (Huebner, Suldo, & Valois, 2005; Marques, Pais-Ribeiro, & Lopez, 2011).

Associations between the SLSS and demographics (e.g., age, gender) have been typically found as moderate at best in magnitude (e.g., Gilman & Huebner, 2003; Huebner, 1991a). LS is distinguishable from social desirability as the reported correlations have been modest to moderate (e.g., Proctor et al., 2009). Furthermore, the SLSS was found to be associated significantly with other validated measures assessing LS, like the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS), showing convergent validity (Seligson, Huebner, & Valois, 2003).

Adolescent LS is also significantly associated with temperamental variables, like Eysenck and Eysenck's (1975) three superfactors of Psychoticism (P), Extraversion (E), and Neuroticism (N). Prior research showed moderate negative relationships between LS, and N and P, and moderate positive relationships between LS and E (e.g., Fogle, Huebner, & Laughlin, 2002; Heaven, 1989; Huebner, 1991b).

The present research

Although the SLSS shows promising psychometric properties for the assessment of global life satisfaction in young people, only the original US version (Huebner, 1991a) and a Portuguese version (Marques et al., 2007) have been published to date. The adaptation of such a useful measure to another, large language area will help making findings on LS comparable across several cultures. For that reason, the purposes of the present research were threefold: (1) adaptation of the SLSS for use with German-speaking children and adolescents (aged 10-17 years); (2) determination of the reliability, stability, and the factor structure of

the German SLSS; and (3) preliminary validation of the German SLSS. We conducted two separate studies to address these issues.

Study 1

Study 1 aimed at adapting the German SLSS, evaluating its descriptive statistics, factorial structure, internal consistency, test-retest reliability, and associations with age and gender as well as with a social desirability measure. Furthermore, correlations between the German SLSS and the temperamental superfactors of P, E, and N were considered.

Material and Methods

Participants

The sample consisted of $N = 286$ German-speaking Swiss (50.3% were males). Their mean age was 13.74 years ($SD = 1.11$) and ranged from 12 to 17 years. All participants attended secondary school (highest level).

Instruments

The *Students' Life Satisfaction Scale* (SLSS; Huebner, 1991a) is a seven-item measure for the self-assessment of global satisfaction with life utilizing a 6-point answer format (from 1 = *strongly disagree* to 6 = *strongly agree*). A SLSS total score is formed by averaging the seven items.

The *German short form of the Junior Eysenck Personality Questionnaire* (J-EPQ; Rost & Hartmann, 1993) consists of 38 items and uses a dichotomous (*yes/no*) answer format for the self-assessment of Psychoticism (8 items), Extraversion (10 items), Neuroticism (10 items), and a lie scale as an indicator of social desirability (10 items). The J-EPQ showed internal consistencies of $\alpha = .60$ for P, $\alpha = .80$ for E, $\alpha = .76$ for N, and $\alpha = .63$ for L in the present sample.

Procedure

Adaptation of the SLSS. We followed the international guidelines (e.g., Van de Vijver & Hambleton, 1996) in adapting the SLSS to the German language. In a first step,

considering construct and method bias, we ensured that there were no cultural discrepancies regarding the measured concept in general and the way of assessing it. In a second step, two psychologists (the first and second author of this paper; both German native speakers with good knowledge of English) translated the original US-version (Huebner, 1991a) into German independently. Following this, an initial version of the German SLSS was created by the first and second author with respect to ensure content validity. Considering lexical appropriateness a bilingual person (with psychological knowledge) back translated this initial version. In one case we detected a slight lexical discrepancy (i.e., item bias) within item 7 “My life is better than most kids”, and we slightly modified it to “My life is better than most of my age”, to be more appropriate for all age groups in German-speaking areas. The items of the final German version of the SLSS are given in Appendix A.

Data collection. Data were collected in several classes of one secondary school in the regular classroom setting (i.e., groups of 20-25 students) supervised by an instructed teacher (i.e., following standardized instructions) on two occasions with an interval of 4 months using paper-pencil questionnaires. A total of 286 of 301 invited students participated in this study, yielding a response rate of 95.02%. The reason for non-participation was mostly “absence at school because of health reasons”. All students attended voluntarily, and all provided signed permission of parents or legal guardians who were informed about the study by a letter beforehand. None of the students was paid for participation.

Results

Descriptive Statistics

The German SLSS (i.e., total score) showed a mean of 4.67 ($SD = 0.89$). A comparison with the US mean ($M = 4.21$, $SD = 1.14$; Huebner et al., 2005) yielded a difference showing a small to medium effect size (Cohen's $d = .45$; Cohen, 1988). The means of the items ranged from 3.76 ($SD = 1.45$; item 3) to 5.29 ($SD = 0.94$; item 5; see Table 1).

Insert Table 1 about here

Reliability

The items of the German SLSS inter-correlated significantly, with a median of .52 (ranging from $r = .23$ to $r = .79$), and the scale showed a substantial Cronbach's Alpha of .88. The items showed a median of corrected item-total correlations of .75 (ranging from $r = .44$ to $r = .81$). Table 1 shows that the test-retest correlations on the item level (see Table 1) ranged from $r = .35$ to $r = .52$ (median of .44); and the German SLSS showed a stability of $r = .55$ for an interval of four months (with no changes on mean level indicated by a paired t-test; $t[285] = 0.20, p = .839$).

Factorial Structure

Following Dew and Huebner (1994), a principal component analysis showed that one eigenvalue exceeded unity, and the scree test and parallel analysis (Horn, 1965) suggested a one-factor solution as well (first five eigenvalues: 4.30, 0.84, 0.66, 0.45, 0.35). This single factor explained 61.40% of the variance. Table 1 shows the factorial loadings of the first unrotated principal component (FUPC) with a median of .84 (ranging from .55 [item 7] to .88 [items 1,2]). This FUPC showed a correlation of .89 and a Tucker's Phi of 1.00 with the solution reported by Dew and Huebner (1994).

Associations with Age, Gender, and Social Desirability

Associations between the German SLSS and age ($r = -.02, p = .806$) and gender ($t[284] = 1.30, p = .196$) failed to be significant. LS was found to be moderately correlated with social desirability ($r = .20, p < .01$). On the item level (see Table 1), we found low correlations of between $r = .10$ and $r = .19$ with a median of .15.

Correlations with Temperament

In order to explore the validity of the SLSS, we computed partial correlations (controlled for gender, as P and N were found as associated with gender) between the

German SLSS (total scale and seven items) and the three superfactors P, E, and N (see Table 2).

Insert Table 2 about here

Table 2 shows that global LS was significantly associated with all three superfactors in theoretically meaningful ways. As expected, the German SLSS showed negative correlations with P and N and a positive correlation with E. The numerically highest associations were found between German SLSS item 1 (“My life is going well”) and P ($r = -.20$), item 6 (“I have what I want in life”) and E ($r = .27$), and item 3 (“I would like to change many things in my life”) and N ($r = -.49$). These findings indicated concurrent validity of the German SLSS as all presumably expected meaningful associations were found.

Discussion

In study one, the results suggested that the German adaptation of the SLSS is a unidimensional and reliable measure. As the instructions ask for trait-like (not for state-like) judgments, the SLSS shows a meaningful stability coefficient. As expected (e.g., Proctor et al., 2009) the instrument is slightly correlated with social desirability, but uncorrelated with age and gender in 12-17 year-old Swiss students. Furthermore, a higher mean for the German SLSS was observed compared to the Huebner et al. (2005) US sample. This finding is comparable with studies on adults (e.g., Diener, 2000; Veenhoven, 2011) where Swiss participants typically show higher LS than US adults. Item 7 was the only item that was slightly modified when adapting the SLSS for German language; it showed the lowest factorial loading, but also the highest test-retest correlation. As this item has also demonstrated the lowest loading in both the US and the Portuguese versions (e.g., Dew & Huebner, 1994; Huebner, 1991a; Marques, Pais-Ribeiro, & Lopez, 2007), this lower loading is not likely due to the translation process. A possible reason for this finding might involve the change in the perspective required for this item relative to the other items. Items 1 to 6

involve only the perspective of the self in relation to an undefined, individually-determined standard. In contrast, item 7 requires a comparison between the self and others. Finally, as Heaven (1989) found for Australian students higher LS was also reported by emotional stable, extraverted, and “socialized” (Eysenck & Eysenck, 1975) low P scoring Swiss students.

Summing up, findings of study one showed that there was no need to revise the German SLSS for future research. A limitation of study one is the relatively homogeneous Swiss convenience sample. Therefore, there is a need to investigate the properties of the German SLSS within a more heterogeneous and larger sample.

Study 2

Study 2 aimed at examining further the psychometric properties, factor structure, and reliability of the German SLSS. Given the empirical evidence that data collected via the Internet is comparable to data obtained via traditional paper-pencil methods (Gosling, Vazire, Srivastava, & John, 2004), we used an internet-based approach for data collection to generate a larger, more heterogeneous sample. Age and gender effects of the German SLSS were tested as well as mean differences across three German-speaking subsamples (i.e., Austrian, German, Swiss). Furthermore, to test convergent validity, the associations between German SLSS and another self-report life satisfaction measure (i.e., BMSLSS) were studied.

Material and Methods

Participants

The sample consisted of 3407 German-speaking children and adolescents (1289 boys [37.8%] and 2118 girls [62.2%]). Their mean age was 14.95 years ($SD = 1.75$; ranging from 10-17 years). Participants were from the highest level of secondary school (50.2%), the medium level of secondary school (21.5%), the lowest level of secondary school (12.7%), primary school (5.2%), and other educational institutions, such as apprenticeship (10.4%).

Around two-fifths of them were of German (41.9%), 38.4% of Swiss, and 19.7% of Austrian nationality.

Instruments

The *German* version of the *Students' Life Satisfaction Scale* (*German SLSS*; American original version by Huebner, 1991a) as previously described in study 1.

The *Brief Multidimensional Students' Life Satisfaction Scale* (*BMSLSS*; Seligson et al., 2003) is a five-item measure for the self-assessment of domain-specific satisfaction (i.e., family life, friendships, school experiences, self, living environment) using a 7-point answer format (1 = *terrible* to 7 = *delighted*). A sample item is "I would describe my satisfaction with my family life as:...". Analyses are based on both the five domain-specific single items as well as a BMSLSS total score (i.e., total score is formed by averaging the five items). The German translation used in this study demonstrated reliability and validity (Weber, 2011) and yielded a Cronbach's alpha of .71, replicating findings of Seligson et al. (2003).

Procedure

The participants completed both measures among other instruments on a well-established website for research purposes (www.charakterstaerken.org; hosted by the Section on Personality and Assessment, Department of Psychology, University of Zurich). The website was advertised using different ways, such as press coverage (e.g., newspaper and several magazines) in order to facilitate the heterogeneity of the sample. Volunteers registered on the website from their personal computers and filled in the instruments there. All students provided the permission of their parents or legal guardians during the registration process. None of the students was paid for participation.

Results

Descriptive Statistics

The German SLSS showed in the total sample a mean of 4.45 ($SD = 0.98$), and means of 4.43 ($SD = 1.00$), 4.29 ($SD = 1.01$), and 4.63 ($SD = 0.89$) in the Austrian, German, and

Swiss subsamples, respectively. There were no differences in means between the Swiss subsample in this study and the Swiss students in study one. Means and standard deviations on the item level are presented in Table 3.

Insert Table 3 about here

Table 3 shows that the means of items ranged in the total sample from 3.38 ($SD = 1.45$; item 3) to 5.06 ($SD = 1.06$; item 5). This pattern was comparable in all three subsamples.

Reliability

Items inter-correlated with a median of .57 (ranging from $r = .26$ to $r = .74$) in the total sample, and with medians of .58, .57, and .54 in the Austrian, German, and Swiss subsamples, respectively. The German SLSS showed a substantial Cronbach's Alpha of .88 in the total sample as well as in the three subsamples (α s from .87 to .89). The median of corrected item-total correlations was .73 (ranging from $r = .42$ to $r = .78$) in the total sample, and .72, .73, and .71 in the Austrian, German, and Swiss subsample, respectively.

Factorial Structure

Four principal component analyses were computed to explore the factorial structure of the German SLSS in the total sample as well in the three subsamples. As expected, one eigenvalue exceeded unity, and the scree test and the parallel analysis (Horn, 1965) suggested a one-factor solution as well (first five eigenvalues: 4.31, 0.80, 0.52, 0.47, 0.39) in the total sample. This single factor explained 61.58% of the variance. The pattern of the first five eigenvalues was identical in all three subsamples, and the total amount of explained variance was 61.31%, 62.20%, and 59.97% across Austrians, Germans, and Swiss students, respectively.

Table 3 shows the loadings of the first unrotated principal component for the total sample as well as nation-specific samples. Loadings in the total sample showed a median of

.82 (ranging from .52 [item 7] to .86 [items 1,2,5]). Comparable loadings were observed in the three subsamples (medians between .80 and .82).

Effects of Age and Gender

A 8 x 2 between-subjects ANOVA with age (10 to 17 years in one-year intervals) and gender (male vs. female) as independent variables and the German SLSS total score as the dependent variable was performed. There was no effect of gender and no interaction effect. However, a small age effect was identified ($F[7, 3391] = 18.82; p < 0.001$; partial $\eta^2 = .037$). Means in different age groups are presented in Figure 1.

Insert Figure 1 about here

Figure 1 shows a linear decreasing trend from 10 to 17 years that was highly significant with $F(1, 3399) = 128.87, p < .001$. This linear trend explained 91.86 % of the total age effect.

Effect of Nationality

A one-factorial ANCOVA was performed, with nationality (Austrian vs. German vs. Swiss) as the independent variable, age (10-17 years) as a covariate, and the German SLSS as the dependent variable. As expected, age showed a significant effect on the German SLSS ($F[1, 3403] = 104.23; p < 0.001$; partial $\eta^2 = .030$). There was also a small effect of nationality on the German SLSS ($F[2, 3403] = 32.39; p < 0.001$; partial $\eta^2 = .019$). Using post hoc tests (Bonferroni corrected), differences were found between all three subsamples (all $ps < .01$). The Swiss students showed the highest mean of 4.60 ($SE = 0.03$), followed by the Austrian students ($M = 4.46; SE = 0.04$) and the German students ($M = 4.30; SE = 0.03$).

Correlations With Another LS Measure

Testing for convergent validity, we computed partial correlations (age-controlled) between the German SLSS and the BMSLSS total score, and its five single domain scores. Results for the total sample as well as the subsamples are presented in Table 4.

Insert Table 4 about here

Table 4 generally shows that the German SLSS correlated substantially with the BMSLSS total score and all single domains of satisfaction. Furthermore, among the different life domains, the *family* and *self*-related satisfaction domains showed the highest correlations with global life satisfaction and the *friends*, *school* and *living environment*-related domains showed the lowest correlations. The results of the total sample were comparable in all three subsamples.

Discussion

In study two, further support for the factor structure and reliability of the German adaptation of the SLSS was obtained. The mean found in the Swiss sample of study one was fully replicated in the Swiss subsample of study two. This indicates a consistent result for the German SLSS across two types of measure administering (i.e., paper-pencil vs. Internet-based). As the present research is limited only to paper-pencil data from Swiss students, future studies are needed that replicate results also for Austrian and German students.

The mean differences between Austrian, German, and Swiss students are comparable with results found for adults (e.g., Veenhoven, 2011), where Swiss participants showed the highest LS on a 10-point-scale ($M = 8.1$), followed by the Austrian ($M = 7.6$), and the German participants ($M = 7.1$). This finding on differences in global LS offers useful but preliminary information in understanding the SLSS in the German context. Nevertheless, caution should be exercised in terms of interpreting the generalizability of the findings regarding differences between different German-speaking countries. The use of the Internet procedure in this study to collect data was not aimed specifically for cross-cultural research questions (e.g., generating parallel samples regarding age, gender, education, etc. from all three countries).

The small age effect indicating a linear decreasing trend in global LS from ages 10 to 17 is consistent with findings reported by Goldbeck, Schmitz, Besier, Herschbach, and

Henrich (2007). Another limitation of study two is the cross-sectional design, therefore, the trend of decreasing LS needs to be replicated using a longitudinal design to more systematically evaluate age-related (vs. cohort) effects.

Finally, the German SLSS shows acceptable convergent validity, as its correlation with the BMSLSS total score was substantial with .70 (corrected for attenuation: $r = .89$). Comparable findings in US samples are reported by Funk, Huebner, and Valois (2006) and Seligson et al. (2003). Also, family and self-related satisfaction reports were the strongest domain-based correlates of global LS and the school and living environment reports were among the weakest domain-based correlates. This finding is consistent with Seligson et al. (2003), suggesting comparable convergent and discriminant validity.

General Conclusions

This research documented the successful adaptation of a measure of global life satisfaction in German speaking children and adolescents, aged between 10 and 17 years. Because researchers often require reliable, valid, and brief measures of LS, the German SLSS will be a very useful assessment tool for future research in this field (e.g., large-scale-assessments). Further studies are planned in order to provide more information about the discriminant and convergent validity of the German SLSS (e.g., its associations with character strengths in young people). The data on students in study two may also provide a useful, preliminary normative comparison base for future research. Summing up all the reported results, the German SLSS can be recommended for use with German-speaking participants.

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